

**APR/FY06**

# **WAIKAKALAUUA AMMO STORAGE**

**Hawaii**

**Army Defense Environmental  
Restoration Program  
Installation Action Plan**

Final 26 September 2006

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The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Cleanup Program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern, and proposes a comprehensive, installation-wide approach, with associated costs and schedules, to conduct investigations, necessary remedial actions.

In an effort to coordinate planning information between the restoration manager, US Army Environmental Center (USAEC), Waikakalau Ammo Storage Tunnels, Installation Management Agency-Pacific Area Regional Office (IMA-PARO), executing agencies, regulatory agencies, and the public, an IAP was completed. The IAP is used to track requirements, schedules, and budgets for all major Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is therefore subject to change.

The following agencies contributed to the formulation and completion of this Installation Action Plan during a planning workshop held on 24-27 April 2006:

**Company/Installation/Branch**

US Army Environmental Center

Booz Allen Hamilton for US Army Environmental Center

Engineering & Environment, Inc. for US Army Environmental Center

Engineering & Environment, Inc. for US Army Garrison Hawaii

US Army Garrison Hawaii

ICI for US Army Environmental Center

DIMCO for US Army Engineer Research and Development Center

State of Hawaii Department of Health, HEER Office

## Acronyms & Abbreviations

<b>AEDB-R</b>	Army Environmental Database – Restoration
<b>bgs</b>	below ground surface
<b>BRAC</b>	Base realignment and Closure
<b>CC</b>	Compliance Related Cleanup
<b>CERCLA</b>	Comprehensive Environmental Response, Compensation, and Liability Act (1980)
<b>CTC</b>	Cost-to-Complete
<b>DOD</b>	Department of Defense
<b>EPA</b>	(United States) Environmental Protection Agency
<b>FS</b>	Feasibility Study
<b>FUDS</b>	Formerly Used Defense Sites
<b>FY</b>	Fiscal Year
<b>IAP</b>	Installation Action Plan
<b>IMA-PARO</b>	Installation Management Agency-Pacific Area Regional Office
<b>IRP</b>	Installation Restoration Program
<b>K</b>	\$1,000
<b>LTM</b>	Long Term Management
<b>LUC</b>	Land Use Controls
<b>MMRP</b>	Military Munitions Response Program
<b>NE</b>	Not Evaluated
<b>NFA</b>	No Further Action
<b>NPL</b>	National Priorities List
<b>OB/OD</b>	Open Burning/Open Detonation
<b>OE</b>	Ordnance and Explosives
<b>PA</b>	Preliminary Assessment
<b>RA</b>	Remedial Action
<b>RAB</b>	Restoration Advisory Board
<b>RA(C)</b>	Remedial Action - Construction
<b>RC</b>	Response Complete
<b>RCRA</b>	Resource Conservation and Recovery Act
<b>RD</b>	Remedial Design
<b>REM</b>	Removal
<b>RRSE</b>	Relative Risk Site Evaluation
<b>SI</b>	Site Inspection
<b>TAPP</b>	Technical Assistance for Public Participation
<b>TRC</b>	Technical Review Committee
<b>USACE</b>	United States Army Corps of Engineers
<b>USAEC</b>	US Army Environmental Center
<b>UXO</b>	Unexploded ordnance

**Installation Locale:** Waikakalaua Ammo Storage is located just west and south of the town of Mililani in a Gulch along Waikakalaua Stream on the island of Oahu, Hawaii. It is a small site, including an ammunition storage tunnel along the western wall of the canyon.

**Installation Mission:** The mission of Waikakalaua Ammo Storage was to provide ammunition storage for the Army during and after World War II. The tunnel site is comprised of 315.16 acres. It contained one now closed munitions site totaling 0.26 acres, and a second munitions site totaling 13 acres. The sites are a result of an ammunition storage tunnel, containing various types of grenades that exploded in 1946.

**Lead Organization:** Installation Management Agency, Pacific Region

**Leading Executing Agency:** Installation

**Regulatory Participation:**

**State:** Hawaii Department of Health: Requested SI

**National Priorities List (NPL) Status:** Not an NPL site.

**Installation Restoration Advisory Board (RAB)/Technical Review Committee (TRC)/Technical Assistance for Public Participation (TAPP) Status:** No RAB/TRC/TAPP has been established at this time.

### **Installation Program Summaries**

#### **IRP**

All IRP sites at Waikakalaua Ammo Storage are Response Complete.

#### **MMRP**

Primary Contaminants of Concern: OE, Lead, Arsenic

Affected Media of Concern: Soil

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 2017 (with indefinite LUCs)

Funding to date (up to FY05): \$ 0

Current year funding (FY06): \$ 161,000

Cost-to-Complete (FY07+): \$ 7,011,000

### ***Installation Historic Activity***

No historic activity has been completed at the Waikakalaua Ammo Storage.

### ***Current Activity***

A SI is underway at the Waikakalaua Ammo Storage.

# WAIKAKALAU A AMMO STORAGE

Military Munitions  
Response Program

**Total AEDB-R MMRP Sites/AEDB-R sites with Response Complete:** 2/0

**AEDB-R Site Types**

2 Multi-Use Ranges

**Most Widespread Contaminants of Concern:** Arsenic, Lead, OE

**Media of Concern:** Soil

**Completed REM/IRA/RA:** None

**Total MMRP Funding**

Prior years (up to FY05):	\$	0
Current Year (FY06):	\$	161,000
Future Requirements (FY07+):	\$	7,011,000
Total:	\$	7,172,000

**Duration of MMRP**

Year of MMRP Inception: 2002

Year of MMRP RIP/RC: 2017

Year of MMRP Completion Including LTM: 2047 (with indefinite LUCs)



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# MMRP Contamination Assessment

## ***MMRP Contamination Assessment Overview***

Two MMRP sites have been identified at Waikakalaua Ammo Storage.

## ***MMRP Cleanup Exit Strategy***

The SI is currently underway.

### 2002

- Final CTT Inventory Report, TechLaw, October

# WAIKAKALAUUA AMMO STORAGE

Military Munitions  
Response Program  
Site Descriptions

# WAST-001-R-01 STORAGE TUNNEL 24A

## SITE DESCRIPTION

Located immediately south and adjacent to Wheeler Army Airfield, this site, which is at the southern end of the installation was used to store anti-tank and rifle fragmentation grenades. Construction on these tunnels began in 1942, and was completed in 1944. According to Army-Navy Explosives Safety Board Abstract Number 28, the tunnel exploded in 1946 blowing large pieces of the concrete baffle out of the tunnel and across the gulch with such force that it destroyed a railroad track 300 feet away and caused a 20-foot depression to form above the tunnel. An assumed distance of 1,800 feet from the front of the tunnel, in an arc plus/minus 10 degrees from the center of the tunnel entry, was developed based upon standards for the type and amount of munitions stored and the storage facility involved, and equations yielding the fragmentation distance taken from the DOD Ammunition and Explosives Safety Standard Manual, 1993. The size of this site has been estimated at 0.26 acres, as the larger portion of the impacted area lies outside of the installation boundary. There have been no known UXO responses at this site, and at present, the area is undeveloped.

Groundwater is located approximately 275 feet bgs and it can be assumed that groundwater contamination will not be of immediate concern.

## CLEANUP STRATEGY

Complete the SI in FY07. Begin the RI in FY12

## STATUS

**REGULATORY DRIVER:** CERCLA

**RAC:** 3 - Moderate

**CONTAMINANTS:** Potential for Lead, Arsenic, OE

**MEDIA OF CONCERN:** Potential for Soil

PHASES	Start	End
PA .....	200204 .....	200305
SI .....	200601 .....	200712
RI/FS .....	201110 .....	201209
RD .....	201510 .....	201609
RA(C) .....	201610 .....	201709
LTM .....	201710 .....	204709

**RC DATE:** 201709

# WAST-002-R-01

## STORAGE TUNNEL 24A (TD)

### SITE DESCRIPTION

This area is comprised of land lying immediately to the west of and outside of the installation boundaries, immediately in front of the tunnel 24A site. The tunnel explosion in mid-1946 kicked munitions out over a large arc of land, likely including this area. An assumed distance of 1,800 feet from the front of the tunnel, in an arc plus/minus 10 degrees from the center of the tunnel entry, was developed based upon standards for the type and amount of munitions stored and the storage facility involved, and equations yielding the fragmentation distance taken from the DoD Ammunition and Explosives Safety Standard Manual, 1993. The size of this site has been estimated at 13 acres. A smaller portion of the impacted area has been reported as closed since it is located within the installation boundary. There have been no known UXO responses at this site. The site is currently undeveloped.

Groundwater is located approximately 275 feet bgs and it can be assumed that groundwater contamination may not be of immediate concern.

### CLEANUP STRATEGY

Complete the SI in FY07. Begin the RI in FY12.

### STATUS

**REGULATORY DRIVER:** CERCLA

**RAC:** 3 - Moderate

**CONTAMINANTS:** Potential for Lead, Arsenic, OE

**MEDIA OF CONCERN:** Soil

<b>PHASES</b>	<b>Start</b>	<b>End</b>
PA .....	200204 .....	200305
<b>SI .....</b>	<b>200601 .....</b>	<b>200712</b>
RI/FS .....	201110 .....	201209
RD .....	201510 .....	201609
RA(C) .....	201610 .....	201709
LTM .....	201710 .....	204709

**RC DATE:** 201709

***Initiation of MMRP:*** 200204

***Past Phase Completion Milestones***

PA - 200305

***Projected ROD/DD Approval Dates:*** Unknown

***Projected Construction Completion:*** 201709

***Schedule for Five Year Reviews:*** Unknown

***Estimated Completion Date of MMRP including LTM:*** 204709 with indefinite LUCs

***Prior Years Funds*****Total Funding up to FY04: \$ 0****FY05****Site Information****Expenditures****FY Total****Total Prior Year Funds: \$ 0*****Current (FY06) Requirements*****Site Information****Requirements****FY Total**

SI

\$161K

***Total Future Requirements: \$ 7,011K******Total MMR Program Cost (from inception to completion of the MMRP): \$7,172K***

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## Community Involvement

There is currently no RAB. However, interest will be solicited once the RI begins.